IN THE CLAIMS

Please amend the claims as follows.

1. (Canceled)

2. (Currently Amended) The computer-readable storage medium as ~~method~~ recited in claim [[1]] 17 wherein ~~varying~~ converting said input sample rate includes producing each data sample associated with said second signal by convolving a predetermined finite number N of data points with an equal number of coefficients, with N being greater than two.

3. (Currently Amended) The computer-readable storage medium as ~~method~~ recited in claim 2 wherein coefficients vary as a function of the temporal spacing between the output point and the corresponding input points.

4. (Currently Amended) The computer-readable storage medium ~~method~~ as recited in claim 1 wherein ~~varying~~ converting said input sample rate increases said input sample rate.

5. (Currently Amended) The computer-readable storage medium ~~method~~ as recited in claim [[1]] 17 wherein ~~varying~~ converting said input sample rate decreases said input sample rate.

6. (Currently Amended) The computer-readable storage medium ~~method~~ as recited in claim [[1]] 17 wherein operating on said plurality of data points includes up-sampling said plurality of data points by a factor of two.

7. – 8. (Canceled)

9. (Currently Amended) The computer-readable storage medium ~~method~~ as recited in claim 6 further including code for decimating a plurality of data points output by said interpolator with a half-band decimator, with ~~varying~~ converting said input sample rate occurring after receiving said plurality of data points and before decimating said plurality of data points.

10. (Currently Amended) The computer-readable storage medium ~~method~~ as recited in claim [[1]] 17 wherein operating on said plurality of data points to associate said input signal includes filtering the same with a finite impulse response filter.

11. (Currently Amended) The computer-readable storage medium ~~method~~ as recited in claim [[1]] 17 wherein operating on said plurality of data points to associate said signal includes filtering the same with an infinite impulse response filter.

12. – 15. (Canceled)

16. (Currently Amended) The computer-readable storage medium ~~method~~ as recited in claim [[12]] 23 wherein:

said halfband filtering is done in conjunction with upsampling said plurality of data points;

said interpolating follows said halfband filtering; and

halfband filtering and decimating follow said interpolating.

17. (Previously Presented) A computer-readable storage medium embodying computer executable instructions for converting an input signal at an input sample rate to one of a plurality of differing intended output sample rates, the instructions comprising:

code for receiving a plurality of data points, associated with the input signal, at the input sample rate;

code for operating on said plurality of data points to associate said input signal with a predetermined set of parameters, with said set of parameters including a first transition band having a first width;

for said plurality of data points, code for controllably converting said input sample rate to any one of said plurality of differing output sample rates for any output data sample in response to a variation in an intended rational sample rate conversion ratio by converting said input sample rate associated with said signal to any one of the plurality of differing intended output sample rates by interpolating a subset of data points of said plurality of data points with an interpolator implementing an interpolation equation and having associated therewith a second transition band, with the width associated with said second transition band being a function of a spectral separation of said first transition band and said image; and

code for producing an output signal having a sequence of data samples approximating the input signal.

18. (Previously Presented) The computer-readable storage medium as recited in claim 17 wherein code for operating on said plurality of data points includes code for up-sampling said plurality of data points by a factor of two.

19. (Previously Presented) The computer-readable storage medium as recited in claim 17 wherein code for operating on said plurality of data points includes code for filtering said plurality of data points with a half-band filter.

20. (Previously Presented) The computer-readable storage medium as recited in claim 17 wherein code for operating on said plurality of data points includes code for decimating said plurality of data points with a half-band decimator.

21. (Previously Presented) The computer-readable storage medium as recited in claim 18 further including code for decimating said plurality of data points with a half-band decimator.

22. (Previously Presented) The computer-readable storage medium as recited in claim 17 wherein code for operating on said plurality of data points to associate said signal includes code for filtering said data points with a filter selected from the set of filters consisting essentially of a finite impulse response filter and a infinite impulse response filter.

23. (Previously Presented) A computer-readable storage medium embodying computer executable instructions for converting a digital audio signal at an initial sample rate to a different intended sample rate, the instructions comprising:

code for receiving a plurality of data points, associated with an audio signal, at an initial sample rate;

code for halfband filtering said plurality of data points with a halfband filter to provide intermediate data points, said halfband filter having a first transition band with an image corresponding thereto;

code for interpolating the intermediate data points with an interpolator utilizing an interpolation equation and having independently programmable parameters and a second transition band, with a width associated with the second transition band being a function of the spectral separation of said first transition band and said image, and wherein the different sample rate is provided by interpolating at least a subset of the intermediate data points based on the independently programmable parameters, and wherein said different sample rate is controllably varied at any output data sample by interpolation; and

code for producing an output signal at the different sample rate.

24. (Previously Presented) The computer-readable storage medium as recited in claim 23 wherein:

said code for halfband filtering is executable in conjunction with code for upsampling said plurality of data points; and

said code for interpolating is executable following said upsampling and halfband filtering code.

25. (Previously Presented) The computer-readable storage medium as recited in claim 23 wherein:

said code for halfband filtering is executable, without upsampling code, on said plurality of datapoints; and

said code for interpolating is executable following said halfband filtering code.

26. (Previously Presented) The computer-readable storage medium as recited in claim 23 wherein:

code for additional halfband filtering is executable following said code for interpolating.

27. (Previously Presented) The computer-readable storage medium as recited in claim 23 wherein:

said code for halfband filtering is executable in conjunction with code for upsampling said plurality of data points;

said code for interpolating is executable following said code for halfband filtering; and further comprising:

code for halfband filtering and decimating executable follows said code for interpolating.

28. (Canceled)

29. (Currently Amended) The computer-readable storage medium [[of]] as recited in claims 17 or 23 wherein said interpolator is an FIR Nth order sum of products interpolator with linear interpolation of coefficients.

30. (Canceled)

31. (Currently Amended) The computer-readable storage medium [[of]] as recited in claims 17 or 23 wherein said interpolator has a transition band beginning adjacent the top of a passband and ending adjacent the bottom of a passband image.

32. (Canceled)

33. (Previously Presented) The computer-readable storage medium of claims 19 or 23 wherein said halfband filter is an IIR filter composed of first order allpass blocks.

34. (New) A sample rate converter to convert an input signal at an input sample rate to one of a plurality of differing intended output sample rates, the sample rate converter comprising:

circuitry to receive a plurality of data points, associated with the input signal, at the input sample rate;

a filter to operate on said plurality of data points to associate said input signal with a predetermined set of parameters, with said set of parameters including a first transition band having a first width;

an interpolator to, for said plurality of data points, controllably convert said input sample rate to any one of said plurality of differing output sample rates for any output data sample in response to a variation in an intended rational sample rate conversion ratio by converting said input sample rate associated with said signal to any one of the plurality of differing intended output sample rates by interpolating a subset of data points of said plurality of data points with an interpolator implementing an interpolation equation and having associated therewith a second transition band, with the width associated with said second transition band being a function of a spectral separation of said first transition band and said image; and

circuitry to produce an output signal having a sequence of data samples approximating the input signal.

35. (New) The sample rate converter as recited in claim 34 wherein to convert said input sample rate produces each data sample associated with said second signal by convolving a predetermined finite number N of data points with an equal number of coefficients, with N being greater than two.

36. (New) The sample rate converter as recited in claim 35 wherein the coefficients vary as a function of the temporal spacing between the output point and the corresponding input points.

37. (New) The sample rate converter as recited in claim 34 wherein to convert said input sample rate increases said input sample rate.

38. (New) The sample rate converter as recited in claim 34 wherein to convert said input sample rate decreases said input sample rate.

39. (New) The sample rate converter as recited in claim 34 wherein to operate on said plurality of data points includes up-sampling said plurality of data points by a factor of two.

40. (New) The sample rate converter as recited in claim 39 further comprising a half-band decimator to decimate a plurality of data points output by said interpolator, with the conversion of said input sample rate occurring after receiving said plurality of data points and before decimating said plurality of data points.

41. (New) The sample rate converter as recited in claim 34 which comprises a finite impulse response filter to operate on said plurality of data points.

42. (New The sample rate converter as recited in claim 34 which comprises an infinite impulse response filter to operate on said plurality of data points.

43. (New) A sample rate converter to convert a digital audio signal at an initial sample rate to a different intended sample rate, the sample rate converter comprising:

circuitry to receive a plurality of data points, associated with an audio signal, at an initial sample rate;

a halfband filter to halfband filter said plurality of data points to provide intermediate data points, said halfband filter having a first transition band with an image corresponding thereto;

an interpolator to interpolate the intermediate data points utilizing an interpolation equation and having independently programmable parameters and a second transition band, with a width associated with the second transition band being a function of the spectral separation of said first transition band and said image, and wherein the different sample rate is provided by interpolating at least a subset of the intermediate data points based on the independently programmable parameters, and wherein said different sample rate is controllably varied at any output data sample by interpolation; and

circuitry to produce an output signal at the different sample rate.

44. (New) The sample rate converter as recited in claim 43 wherein the halfband filtering is performed in conjunction with the upsampling of said plurality of data points, and the interpolating is performed following said upsampling and halfband filtering.

45. (New) The sample rate converter as recited in claim 43 wherein the halfband filtering is performed without upsampling said plurality of data points, and the interpolation is performed following said halfband filtering.

46. (New) The sample rate converter as recited in claim 43 wherein additional halfband filtering is performed following the interpolation.

47. (New) The sample rate converter as recited in claim 43 wherein:

the halfband filtering is performed in conjunction with the upsampling of said plurality of data points;

the interpolation is performed following said halfband filtering; and

the halfband filtering and decimating follows said interpolation.

48. (New) The sample rate converter as recited in claims 34 or 43 wherein said interpolator is an FIR Nth order sum of products interpolator with linear interpolation of coefficients.

49. (New) The sample rate converter as recited in claim 34 or 43 wherein said interpolator is configured to have a transition band beginning adjacent the top of a passband and ending adjacent the bottom of a passband image.